



The High Plains Drifter

NATIONAL WEATHER SERVICE
NORTH PLATTE, NE



<http://www.weather.gov/northplatte>

Safety Awareness Pays!



Safe Boating

A National Weather Service and
Safe Boating Council Initiative

safeboating.erh.noaa.gov

On May 19, 2009 the NOAA's National Weather Service partnered with the National Safe Boating Council to launch the new website on boat safety and introduced the National Safe Boating Week that ran from May 16-22. When out on the water remember weather in Nebraska can change on a dime, so carry your All Hazards NOAA Weather Radio for the fastest dissemination for hazardous weather from the National Weather Service.

What's Inside

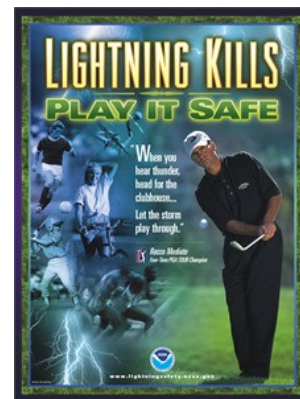
| | |
|--|----|
| Active Winter Season | 2 |
| Severe Criteria Changes | 4 |
| Cooperative Observer Wien's | 6 |
| Nebraska Severe Statistics | 6 |
| Thomas Jefferson Award | 7 |
| Climatology Summary January 1 to May 31, 2009 | 8 |
| Ground Water Levels | 10 |
| Fire Weather Outlook | 11 |
| VORTEX2 | 12 |
| NWS Surveys Climatological | 12 |
| New Faces | 13 |
| Office and Contacts | 14 |

Lightning Awareness Week June 21-27, 2009

As summer approaches NOAA highlights the nation's deadliest weather phenomena— lightning in June. Lightning strikes year around, where the goal of the website 'Lightning Safety' is to safeguard U.S. residents from lightning.

In the United States, an average of 62 people are killed each year by lightning. Of the victims who were killed by lightning in 2008, statistics showed:

- 100% were outside
- 79% were male
- 36% were males between the ages of 20-25
- 32% were standing under a tree
- 29% occurred on or near the water



When Thunder Roars, Go Indoors!

To learn more on lightning safety visit:
<http://www.lightningsafety.noaa.gov>

ACTIVE WINTER WEATHER FOR 2008-2009 SEASON

By Ken Roberg, Meteorologist

This winter season will go down as one of the more active seasons that western and north central Nebraska has seen as weather systems impacted the area each month from October 2008 to April 2009. Not only did the forecast area receive heavy snowfall, but also significant winds that caused blizzard conditions and dangerous wind chills as colder air plunged south on the plains.

In review, the first intense low pressure system tracked slowly east October 22 that brought rain that changed slowly over to snow through the 24th. Snow accumulations ranged from 1 to 3 inches to locally heavy snow amounts of 5 to 8 inches in northwest Custer County and southern Blaine County. A significant high wind event hit on October 26th when a strong cold front moved through the region. The strongest winds were recorded across north central Nebraska with a peak gust of 74 mph near Brownlee in eastern Cherry County.

In November, heavy snow and high winds impacted the area as a strong upper level low pressure system moved east across southern South Dakota from November 5th to the 6th. Strong northwest winds combined with up to 12 inches of snow to produce near whiteout conditions across Sheridan and Cherry Counties. Then strong winds of 35 to 45 mph with some gusts in excess of 60 mph occurred across the remainder of western and north central Nebraska. By the 10th, a band of heavy snowfall occurred across portions of the extreme southwest, where Chase and Perkins counties received storm total snowfall amounts ranging from 6 to 15 inches. Strong northwest winds developed behind cold fronts on the 14th and 30th with numerous observation sites reporting sustained winds of 40 mph with gusts as high as 65 mph.

Arctic air arrived during the month of December with a variety of winter weather. Snow and wind combined with the arctic air for areas to get blizzard conditions and dangerous wind chills from the 13th to 15th as a powerful winter storm moved southeast. As if near zero visibilities wasn't enough, the reinforcement of bitterly cold arctic air drove wind chills to 40 below zero. These dangerous wind chills began during the evening of December 14th and continued through the morning of the 15th. By the 21st, frigid arctic air again swept southeast from the Dakotas producing dangerous wind chill values to 40 below zero across much of the area. 2008 ended with strong northwest winds as a fast moving clipper system brought strong northwest winds on the 30th.

For 2009, the year started slowly as January saw only one significant event on the 12th as a strong and fast moving clipper system produced high winds. Northwest winds of 35 to 45 mph with gusts to 60 mph combined with snow to create low visibilities in snow and blowing snow across eastern Cherry, Keya Paha, and Brown Counties.

Two winter storm events hit in February which produced up to a foot of snow for some locations. The first event was on the 13th when heavy snow produced storm total snowfall from 6 to 10 inches. The heaviest snowfall occurred during the morning as snowfall rates of 2 to 3 inches per hour were observed in Lincoln and Custer Counties. The second event was on the 27th, as a strong upper level system dropped southeast from Western South Dakota that produced widespread heavy snowfall from 4 to 8 inches, while portions of Cherry, Keya Paha, and Boyd Counties saw up to a foot of snow.

In March, there were three winter storm events. The first on the 7th as an upper level system tracked from western Kansas into eastern Nebraska. This storm track brought a 100 mile wide band of moderate to heavy snowfall with the heaviest snowfall from Arthur County northeast across Hooker, southeastern Cherry, and southern Brown Counties. Snowfall reports ranged from 6 to as much as 14 inches. From the 23rd to the 24th, a strong and slow moving spring storm caused severe thunderstorms and then as colder air was drawn into the system, strong winds and snow combined to produce blizzard conditions across the western half of north central Nebraska. Snowfall amounts ranged from 3 to 8 inches with snow drifts up to 5 feet across portions of Sheridan County. March ended with a strong spring storm system that brought heavy snowfall and strong northwest winds that produced blizzard conditions for much of north central Nebraska that ended during the early afternoon hours of March 31st.

The final winter storm occurred in April as shown in Figure 1. and would prove to be the most significant and memorable in recent years. April 4th the powerful spring storm system moved northeast from southern Colorado into eastern Nebraska producing widespread snowfall and strong winds for over 12 hours that created blizzard conditions. The blizzard conditions lasted until the early morning hours on the 5th. The blizzard resulted in many road closures and power outages across western and north central Nebraska. In the north and north central, snowfall amounts ranged from 6 to 18 inches with snow drifts up to 7 feet.

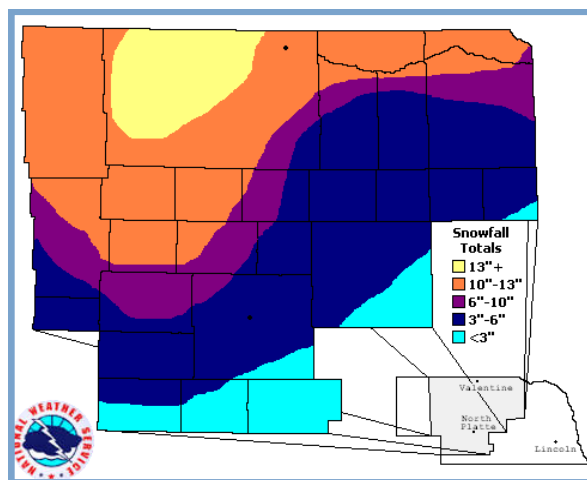
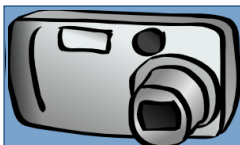


Figure 1. April 4th 2009

The National Weather Service Forecast Office in North Platte would like to thank all our Cooperative Weather Observers for your snowfall observations during the past winter. Without your snowfall reports, verifying these winter events would be hard.



If you have pictures or video to share of any winter or severe weather events that take place this year, please contact Debra.Blondin@noaa.gov

With your permission, your pictures and video will provide information and training materials for future storm spotters and meteorologists!



SEVERE CRITERIA CHANGES

By Teresa Keck, Meteorologist

The 1" Hail Initiative in Central Region that was tested over four years by National Weather Service (NWS) offices covering the state of Kansas was expanded April 1, 2009 to include all Central Region forecast offices. The change was based on feedback from media outlets, emergency officials and the public. The initiative changed the hail criteria to issue severe thunderstorm warnings from 3/4 inch to 1 inch hail size. While the hail size does change, the wind criteria remains at 58 mph.

In completing a local study to get a historical hail perspective for western and north central Nebraska, Storm Data reports were used to review data for the period from 1950 to 2005. The study found that of the 5087 confirmed hail reports, the number of 1 inch or greater reports averaged 56.7 percent for the counties served by the NWS North Platte office as shown in Table 1. The number of hail reports increase for the larger counties with the greatest number of reports found in Lincoln County.

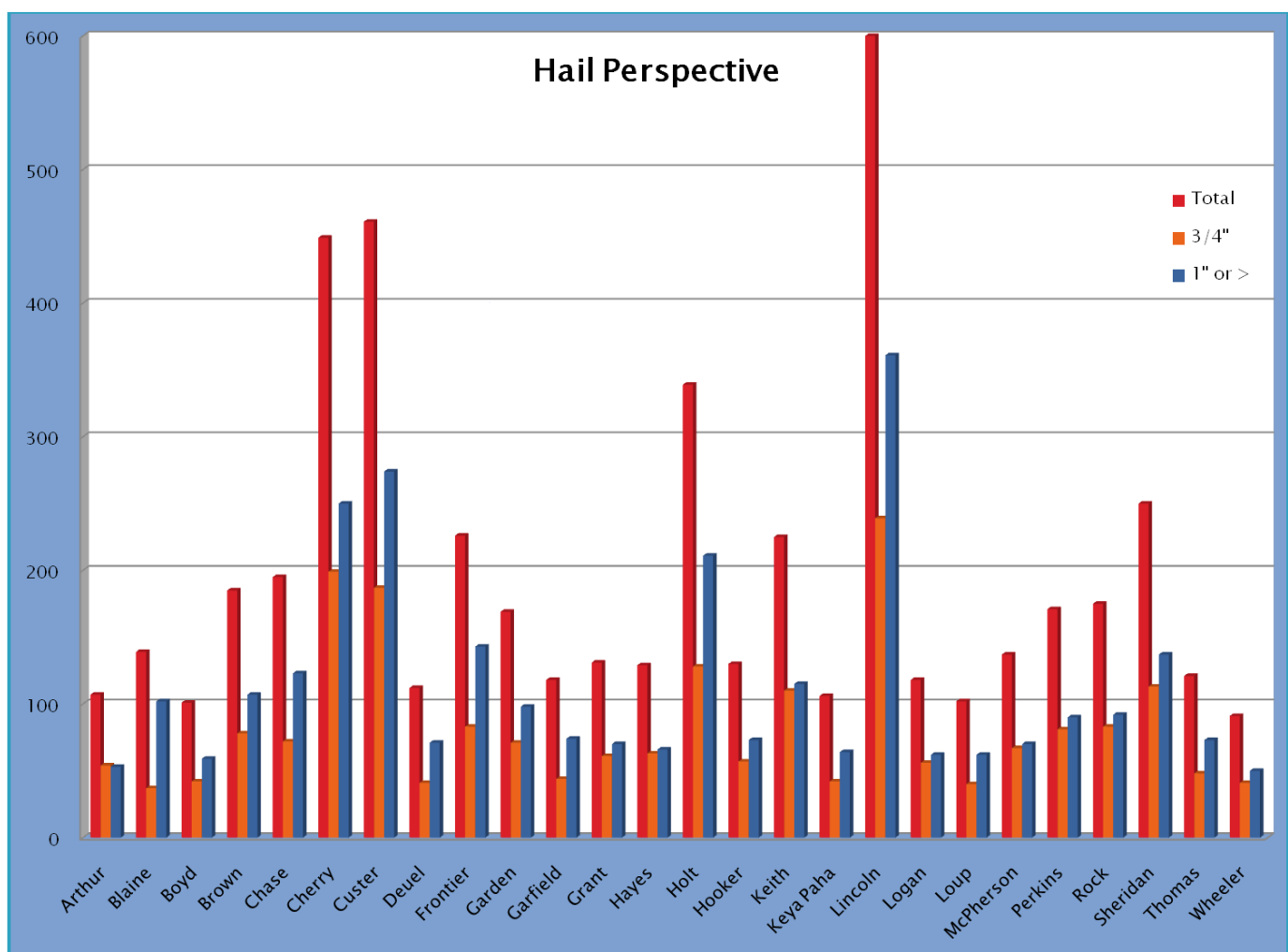


Table 1. Hail reports for western and north central Nebraska

Thunderstorms occur throughout the world daily, but in western and north central Nebraska the potential for thunderstorms to produce hail has historically covered the period from March to October as shown in Table 2. As spring arrives, the number of hail days increases with the peak found in the month of June. The impacts from the severe criteria change will be that meteorologists will focus on more intense storms that can produce destructive hail of 1 inch or greater.

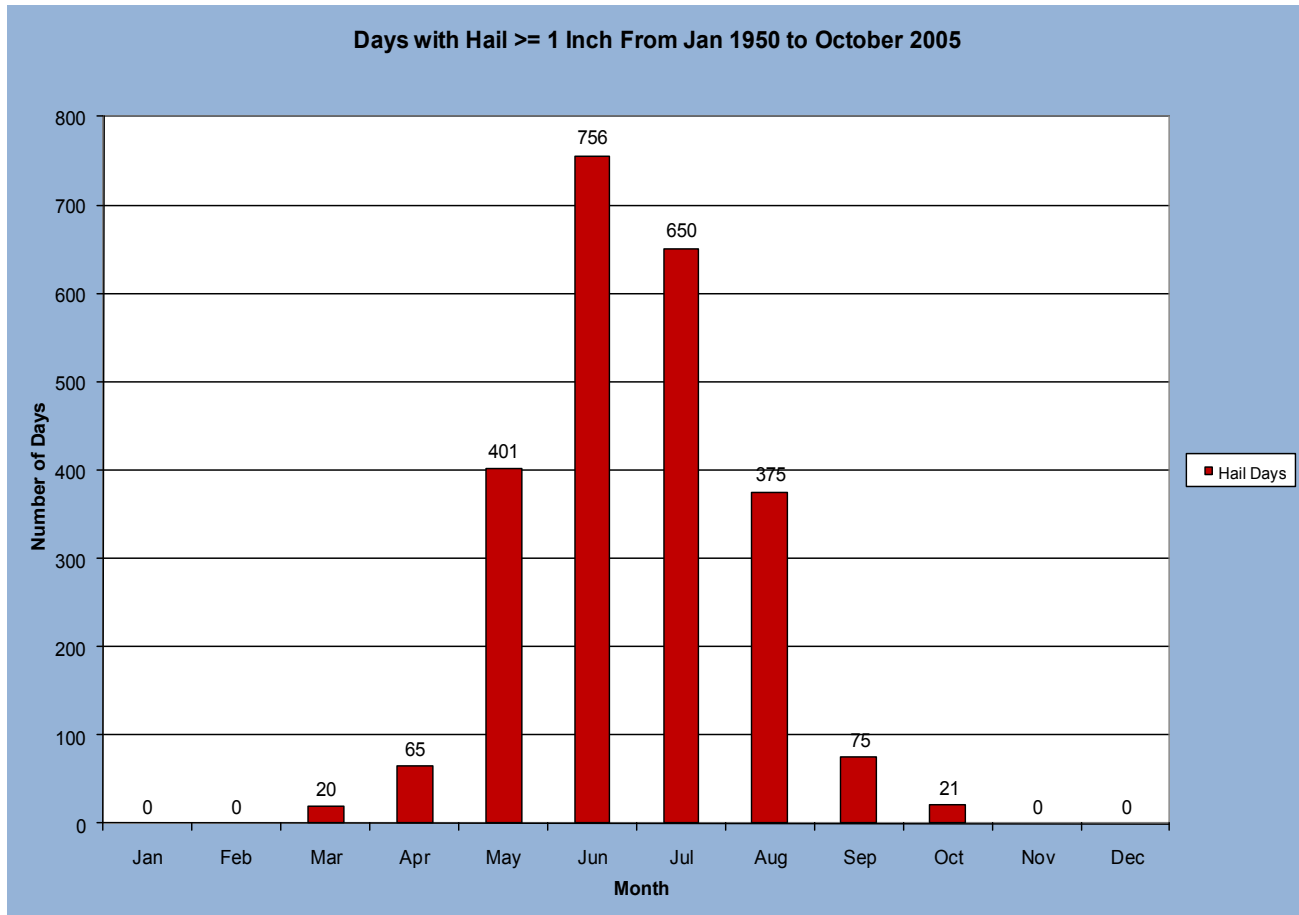


Table 2. Hail Days in western and north central Nebraska



Maxwell 05/29/08
Patti Young



Wellfleet 05/29/08
Judy Walton



Hayes Center 06/04/08
Char Hamilton

Cooperative Observer Wiens Reports

By Teresa Keck, Meteorologist

Great partnerships exist and continue to grow between the National Weather Service and cooperative observers. Such partnerships create invaluable information exchanges as seen on May 12th, when an isolated thunderstorm that developed over Grant County intensified and produced a tornado in Hooker County. Cooperative Observer Wynn Wiens and his wife Crystal reported and captured pictures of the tornado as it developed and touched down to the west. The office completed a storm damage survey, where findings determined that the tornado touched down approximately 17 miles south-southwest of Mullen at 621 PM MDT. The tornado was on the ground 4 miles and before lifting had demolished an outbuilding, a windmill, a radio tower, a metal windbreak and tossed a cab of a pickup a hundred yards at the Charles and Sandy Munn residence. The tornado carried debris from the Munn residence as far as two miles east. The tornado was rated an EF-0 with wind speeds of approximately 80 mph. The width of the tornado reached 50 yards. Pictures below are a courtesy of Crystal Wiens.



2008 NEBRASKA TORNADO STATISTICS

By Debra Blondin

| | |
|-----------------------|--|
| Tornadoes: | 59 (17 above the 1950-2008 average of 42, 9 above the 30 year average of 50) |
| Deaths: | 0 |
| Injuries | 3 (Douglas County—June 8th) |
| Longest Track: | 31.63 miles (2.3 miles WNW Kearney to 4.6 miles NNE of Wood River) |
| Strongest: | EF2 (May 29th, June 5th & 8th) |
| Most in county: | 5 (Chase County) |
| Tornado days: | 20 |
| Most in 1 day: | 14 (May 29th) |
| Most in 1 month: | 34 (June) |
| 1st tornado of 2008: | April 23rd (EF1—Morrill County) |
| Last tornado of 2008: | August 13th (EF0—Deuel County) |

Season Highlights in western and north central Nebraska

| | |
|-----------------|---|
| Largest Hail: | 4.50" (softball size) on June 18th east of Westerville in Custer County |
| Strongest Gust: | Estimated 70-80 mph gust on June 17th southeast of Bartlett in Wheeler County Measured 72 mph gust on May 21st south of Oshkosh in Garden County |

THOMAS JEFFERSON AWARD WINNER ANNOUNCED

By Steve Carmel, Hydrometeorological Technician

The National Weather Service's most distinguished award for cooperative weather observers is named for Thomas Jefferson, who was one of the first people in the United States to collect daily weather information. Typically only five Thomas Jefferson awards are given annually to worthy candidates who have demonstrated outstanding and unusual achievements.

For 2009, six distinguished Cooperative Weather Observers from across the United States were selected as winners of the Jefferson Award. The Jefferson Award is signed by the Secretary of Commerce, the Under Secretary for Oceans and Atmosphere, and the Director of the National Weather Service. This year, the National Weather Service announced Cooperative Observer Mr. Gilbert Koch, from 2 miles northwest of Eustis, as one of the six winners for the 2009 Thomas Jefferson Award. Mr. Koch has proven to be an observer of extremely high caliber. His weather observing has been outstanding for nearly 40 years, and he has provided exemplary weather observations and information to the National Weather Service, his community, and the National Climatic Data Center, along with the Nebraska State Climatologist, for almost 4 decades, since August 1st, 1969.

Mr. Koch is a highly respected, admired, and an involved member of his community to include serving as the financial secretary of his church for over a quarter century; on the Board of Directors of the Farmer's Cooperative Association for over 22 years; long time member of the Eustis Volunteer Rescue Squad, serving as an emergency medical technician (EMT) during his tenure; treasurer for the Eustis Rescue Squad; co-chairman of the open class agriculture and garden exhibits at the Eustis Fair & Corn Show; and a volunteer 4-H leader for weather projects.

Further details about this prestigious award for Mr. Gilbert Koch of rural Eustis, Nebraska, will be forthcoming soon, in a NOAA National Weather Service Press Release, and additional web stories about the award presentation ceremony. Some of the categories used by the Selection Committee in assessing the Thomas Jefferson Award winners include:

- Consistently provides accurate and legible weather observations.
- Has taken and reported observations under hazardous or extreme weather conditions over an extended period of time.
- Shown unusual effort to ensure early receipt of data at collection centers.
- Consistent or unusual efforts to ensure early receipt of data at collection centers.
- Independent preparation or publication of climatological data or summaries based on quality, consistency, and length of time issued.
- Consistent and/or unusual efforts to disseminate weather information and care of instruments.
- Unusual cooperation with NWS and other officials.
- Outstanding enthusiasm for imparting observational knowledge.
- Civic minded and respected by members of the community.

JANUARY 1- MAY 31, 2009 CLIMATOLOGY SUMMARY

By Matt Masek, Meteorologist

The first five months of 2009 have been a roller coaster ride for temperatures as usual for western and north central Nebraska.

January started the year out warmer, with a bitter cold wave to strike the area for nearly a week towards the end of the month. In February temperatures began to warm to include record heat on the 6th when temperatures reached into the mid 70s. The remainder of the February was more seasonal at, least until the last couple days when another bitter arctic outbreak hit the area. Then March was a typical month with large swings in areal temperatures. By the end of March, the average temperature was near to slightly below normal.

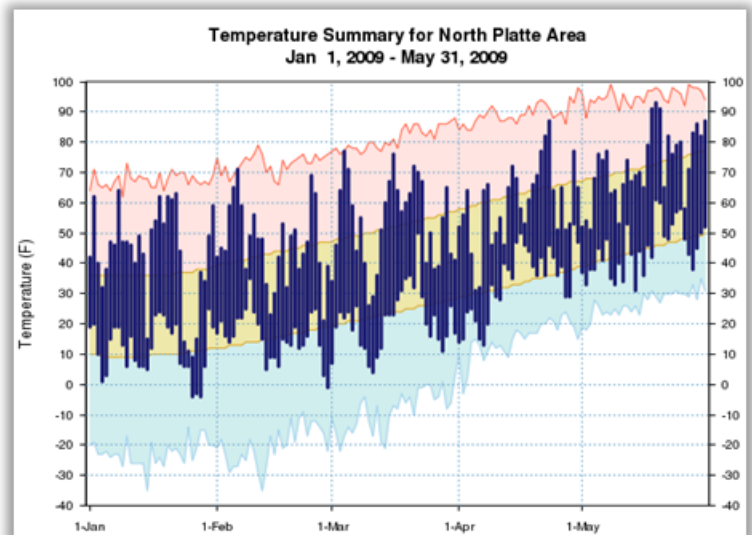


Table 3. North Platte temperature summary

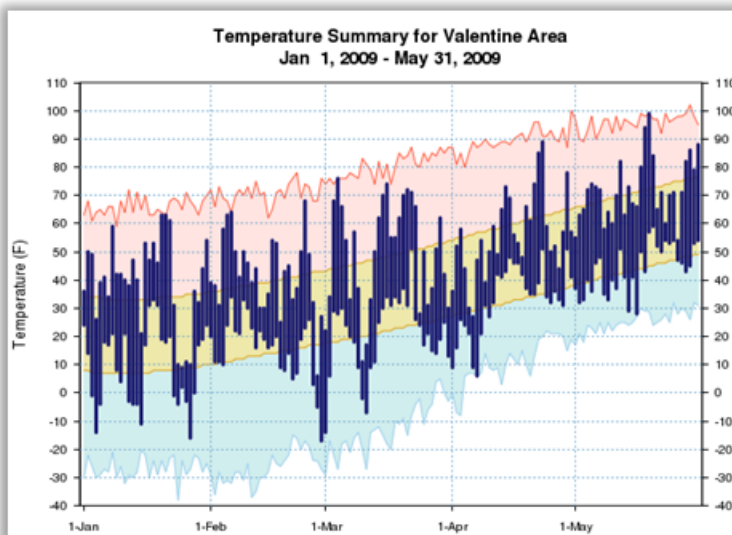


Table 4. Valentine temperature summary

In April, an active pattern ended with average temperatures ending slightly below normal. For May, only a couple of major swings in temperatures occurred, including a three day record to near record period of heat from May 18th to the 20th. By the end of May, the average temperature was close to normal. Temperature summary graphs for North Platte and Valentine are provided in Tables 3 and 4. The graphs show the record highs in red, record lows in blue and the 30 year normals in yellow. The dark blue lines were the observed daily temperatures in 2009. North Platte's range in temperatures was -40 to 100 degrees; Valentine was -40 to 110 degrees.

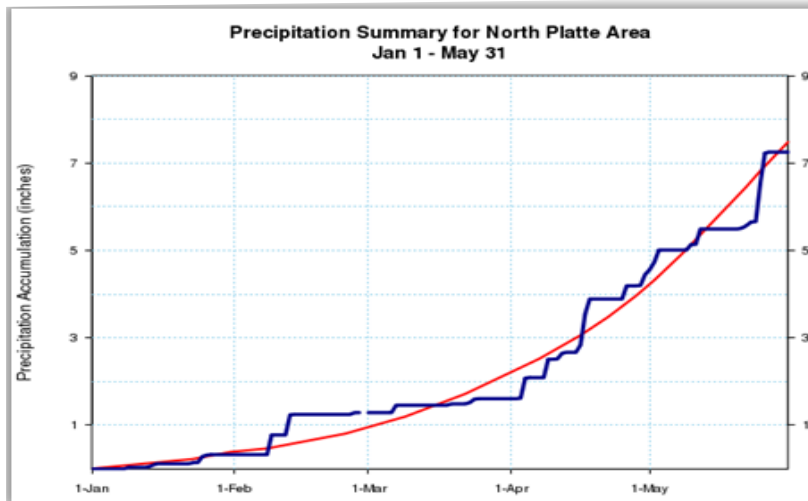


Table 5. North Platte precipitation summary

A couple notable snow storms occurred this spring, where most areas experienced some snow accumulation. Then the last few weeks of May, as the convective season kicked into high gear, localized areas of heavy rainfall was experienced across portions of the state. The precipitation summaries for North Platte and Valentine are provided in Tables 5 and 6. The blue line is a running total of observed rainfall for 2009 and the red curve is the 30 year smoothed normal value.

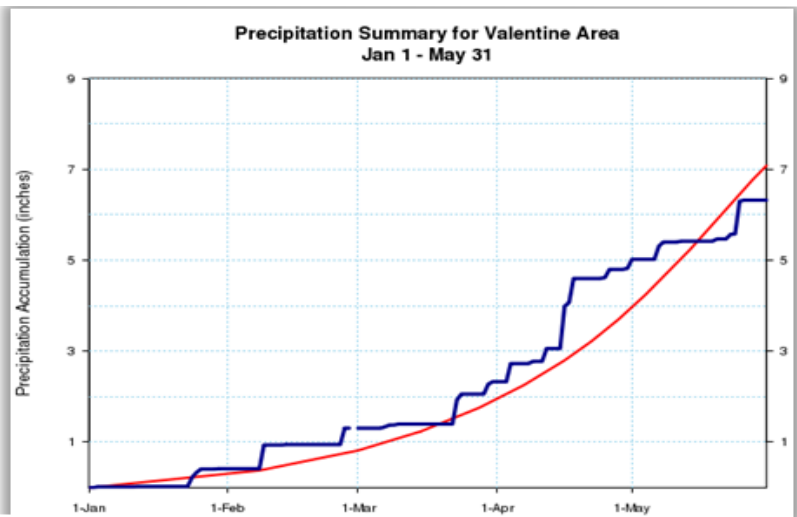


Table 6. Valentine precipitation summary

TEMPERATURE NORMALS FOR JUNE TO SEPTEMBER

| Normal High/Low Temperatures | | | | |
|------------------------------|--------|--------|-------|--------|
| Location | June 1 | July 1 | Aug 1 | Sept 1 |
| North Platte | 81/54 | 88/60 | 86/58 | 77/46 |

| Normal High/Low Temperatures | | | | |
|------------------------------|--------|--------|-------|--------|
| Location | June 1 | July 1 | Aug 1 | Sept 1 |
| Valentine | 77/50 | 87/58 | 89/61 | 82/52 |

GROUND WATER LEVELS OF THE HIGH PLAINS AQUIFER

By Mark Byrd, Observation Program Leader

The High Plains Aquifer underlies one of the major agricultural regions of the world. The aquifer extent, from Wyoming and South Dakota in the north, to Texas and New Mexico in the south, is shown in Figure 3. In the areas that overlie the aquifer, farmers began extensive use of ground water in the 1930s and 40s. The irrigated acreage increased rapidly from 1940 to 1980, but changed little from 1980 to 2002.

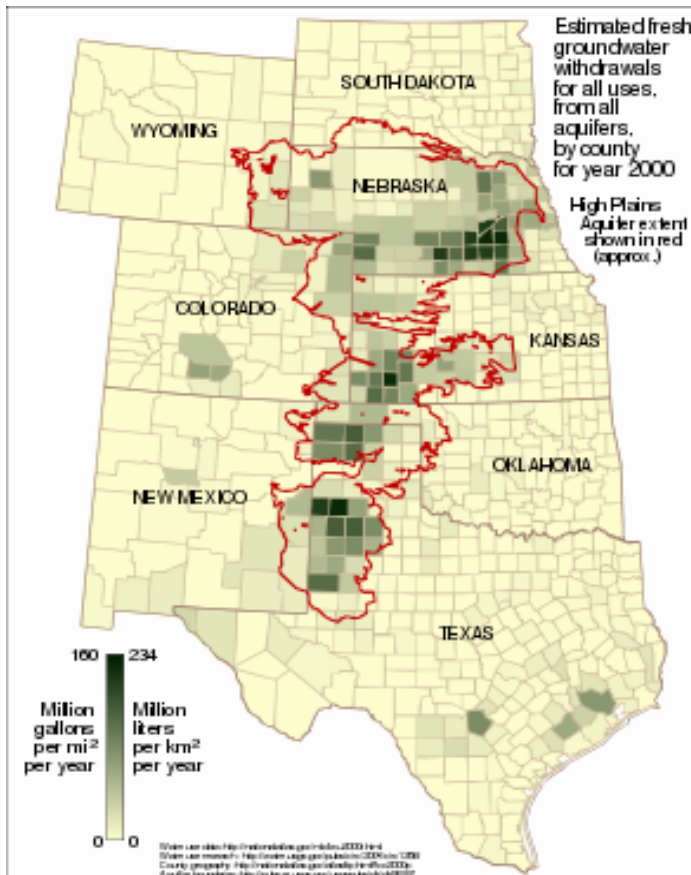


Figure 3. High Plains Aquifer

decline from pre-development to the Year 2003; 17 percent had more than a 25 feet of water decline and 9 percent had more than a 50 foot decline, based on analysis by the United States Geological Survey and other State and federal agencies and shown in Figure 4.

Water-level changes in the aquifer result from an imbalance between discharge and recharge. Discharge is primarily ground-water withdrawals for irrigation. Recharge is primarily from precipitation. Other sources of recharge are irrigation return flow and seepage from streams, canals, and reservoirs.

In the Platte River Valley, water level changes from 1950 to 2003 ranged from a rise of 86 feet to a decline of 223 feet. The average change in water level of the High Plains Aquifer was an overall decline of 12.6 feet. Approximately 24 percent of the aquifer area, not including the areas of little or no saturation, had more than a 10 feet of water

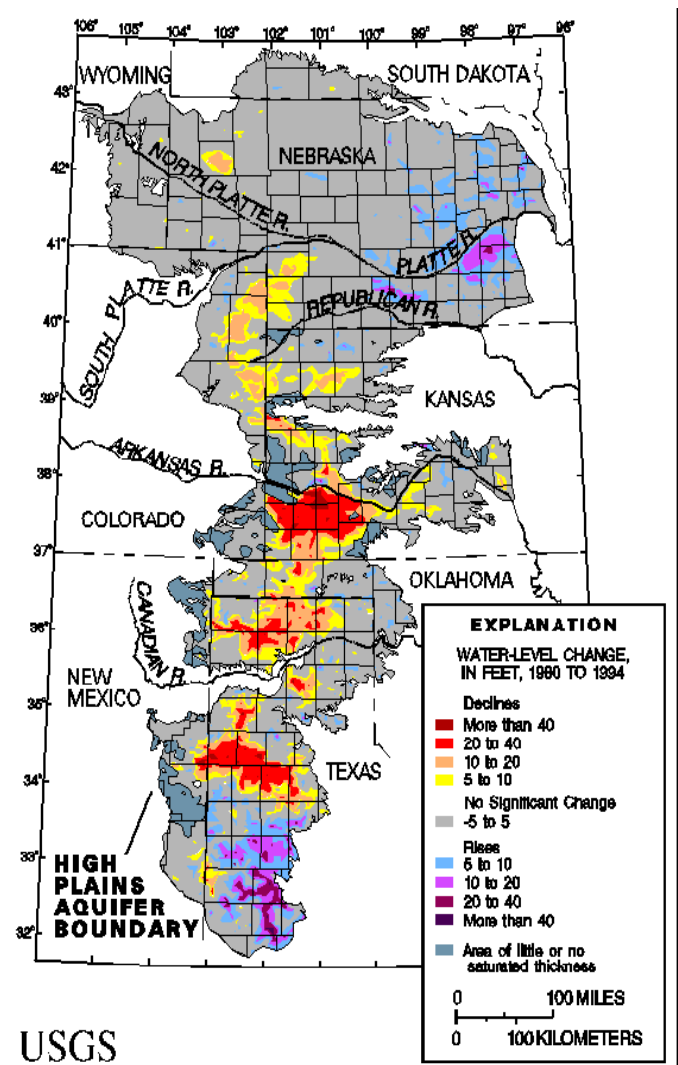


Figure 4. USGS Water-Level Changes from 1960 to 1994

FIRE WEATHER OUTLOOK

By Dennis Phillips, Meteorologist

Drought conditions have improved significantly the past three years across Western Nebraska as rainfall has eased the extreme drought conditions as seen in May 2006 and shown in Figure 5.

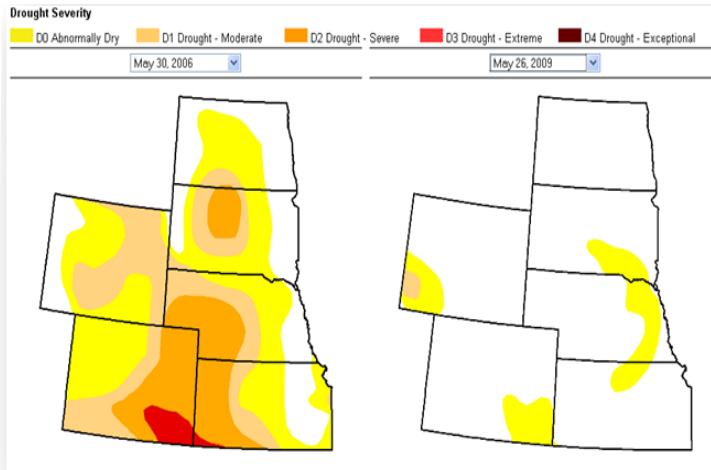


Figure 5. Drought Severity May 2006 and 2009

Widespread D1-D2 conditions have been eliminated the past 3 years across the High Plains which has had a positive effect of lowering wildfire activity. This could be attributed to relatively wet and cool periods during the wildfire peak period of late winter and early spring, just prior to greenup. The last large wildfires were during the extreme drought conditions of 2006 when the Chadron and Valentine fires were observed.

Abundant fuel loading, or increased growth of prairie grasses, is a result of this easing of the drought and may be of a concern when drought conditions return.

The prairie grasses of Western Nebraska are considered fine fuels, which respond very quickly, sometimes almost instantly, to above normal temperatures and below normal precipitation. Drought outlooks do not indicate this will happen in the near future, so an average to below average wildfire season can be expected.

National and regional wildfire outlooks similar to Figure 6 indicate that much of the Plains will be under normal conditions for wildfires, while the Western States continue to be under a threat for large fires. Meteorologists at the NWS in North Platte, in cooperation with local land managers, will be monitoring any local changes in these conditions especially during the late summer and fall when warm season grasses fully cure.

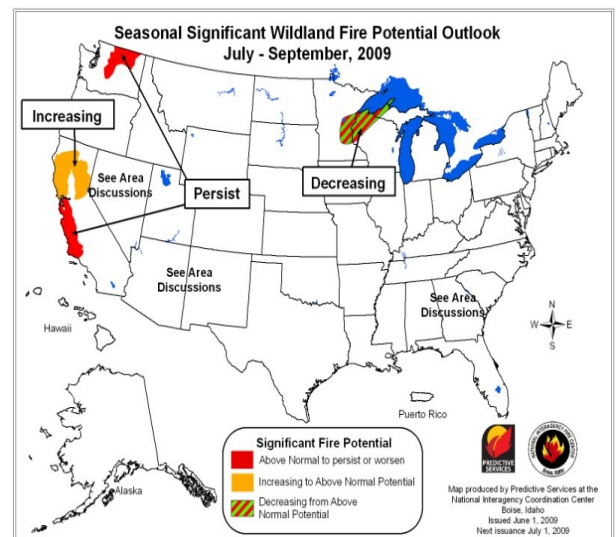


Figure 6. July—September, 2009 Outlook

For more information on western and north central Nebraska fire weather visit:

<http://www.crh.noaa.gov/lbf/forecasts/firewx/firewx.php>

VORTEX2— RESEARCHING THE SCIENCE BEHIND TORNADOES

By John Stoppkotte, Science Operations Officer



Figure 7. Grant Tornado March 2007

In May 2009, science went on the road as over 40 scientists gathered to research and gather the science behind tornadoes, such as shown in Figure 7. The project, called VORTEX2, by NOAA and other researchers, is a joint venture that is being led to better understand the when, where, what, why and how tornadoes form through the use of cutting edge technology and instrumentation. The scientists will follow weather patterns that are conducive to tornadogenesis to orchestrate the gathering of data through the use of an armada of mobile radar and mesonet

instrumented vehicles, to include Sticknets, tornado-pods, disdrometers, weather balloon launching vans, and unmanned aircraft. In addition, the project will also conduct damage surveys and complete photogrammetry to better understand the dynamics of tornadoes.

VORTEX2 is a two year project that will run during the months of May and June to gather data through 2010. In the future, the data gathered will be used to enhance the decision making processes used by meteorologists in the warning process to improve lead time in tornado warnings and reduce false alarm ratios.

To learn more on VORTEX2 visit the web at: <http://www.vortex2.org/home/>

NWS SURVEYS CLIMATOLOGICAL PRODUCTS & SERVICES

The NOAA's National Weather Service (NWS) Climate Services program is committed to meeting the needs of its customers through collaboration and partnerships, outreach and training, and the NWS delivery infrastructure, which includes the Climate Prediction Center and NWS Regional and Local offices. The NWS is researching user satisfaction with products and services provided by the Climate Services program, and would appreciate your feedback. The purpose of this research, conducted in partnership with the federal government as part of the American Customer Satisfaction Index, is to help NWS improve its climate products and services for you and others like you.

Your answers are voluntary, but your opinions are very important for this research. Your responses will be held completely confidential, and you will never be identified by name. CFI Group, a third party research and consulting firm, is administering this survey via a secure server. The time required to complete this survey will be dependent on how certain questions are answered, but it will likely take approximately 20 minutes, and is authorized by Office of Management and Budget Control No. 1505-0191. If you're interested in participating in the survey visit:

<https://svy.cfigroup.com/cgi-bin/qwebcorporate.dll?idx=GAFP8W>

NEW FACES



Meteorologist Intern Shawn Jacobs recently came to National Weather Service from Rapid City South Dakota, where he completed a Master's of Science degree in Atmospheric Science at the South Dakota School of Mines and Technology. His master's thesis centered upon modeling of pollutant transport from prescribed fire in the Black Hills. While completing this degree, Shawn was able to work for the State of South Dakota as an Incident Meteorologist where he developed a passion for wildfire meteorology. Shawn is hopeful that he will be able to continue to develop this passion and become a National Weather Service Incident Meteorologist at some point in his career. Before pursuing his master's degree, Shawn double majored in Earth Sciences (Meteorology emphasis) and

Anthropology (Archaeology emphasis) from the University of Northern Colorado in Greeley. In his free time Shawn enjoys fishing, storm chasing, playing games, reading and hiking. He also enjoys returning home to Colorado to visit with his family and enjoy the Rocky Mountains.

Chauncy Schultz became a meteorologist intern in North Platte in late May, after completing a Bachelor of Science degree in atmospheric sciences at the University of North Dakota.

Originally from a small town in central North Dakota, Chauncy feels at home on the High Plains. Chauncy spent his college years working as a student employee of the National Weather Service offices in Bismarck and Grand Forks, North Dakota. He has had a strong passion for the weather since elementary school, when he managed to see a brief tornado from his bike (his only successful storm chase, to date!). Chauncy is

interested in many aspects of the atmosphere, but has

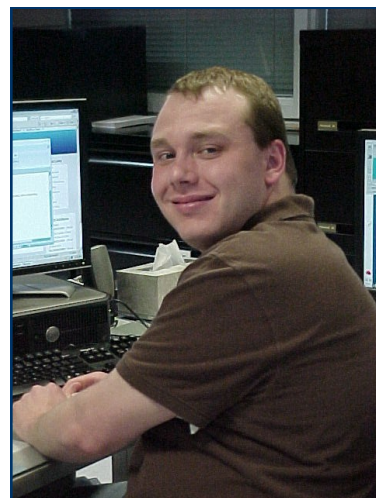
focused his research on weather patterns that cause

tornadoes, as well as those that look like they should, but

don't quite produce any. He also has a strong interest in fire weather, and spent several years

as a volunteer firefighter on his hometown's department. In his spare time, Chauncy loves spending time at the lake, and enjoys fishing and spending time with his family and friends.

He's also an avid hockey fan, and can be found watching college or NHL games almost any spare time he has during the winter.





National Weather Service Office North Platte, Nebraska

Lead Forecasters

Chris Buttler Cliff Cole
Kenny Roberg Mitch Power
John Springer

General Forecasters

Teresa Keck Matt Masek
Dennis Phillips Bill Taylor

Meteorological Interns

Shawn Jacobs Chauncy Schultz

Office Staff

Meteorologist in Charge

Brian Hirsch

Warning Coordination Meteorologist

Deb Blondin

Science & Operations Officer

John Stopkotte

Electronics Systems Analyst

Andy Miller

Information Technology Officer

Dennis Blondin

Administrative Support Assistant

Rhonda Snedeker

Electronic Technicians

Alan Johnson Ernie Vasina

Observation Program Leader

Mark Byrd

Hydrometeorological Technicians

Jim Sweet Steve Carmel

National Weather Service
5250 E. Lee Bird Field
North Platte, NE 69101

Phone: 308-532-4936
1-800-603-3562
Fax: 308-532-9557
Email: Teresa.Keck@noaa.gov



<http://www.weather.gov/northplatte>

Comments and suggestions are
always welcome. Your feedback is very important to us!